



User's Manual

Congratulations! You are now a proud owner of the finest reverse osmosis filtration system available. Marine Depot has assembled a high quality water purifying system that turns ordinary tap water into sparkling, great-tasting healthful drinking and aquarium water by combining filtration and absorption. With this unit you can be assured that your aquatic animals and your family are enjoying the highest quality water possible.

YOUR REVERSE OSMOSIS (RO) OR REVERSE OSMOSIS / DEIONIZATION (RO/DI) SYSTEM

SYSTEM SPECIFICATIONS

Sediment Pre-Filter	One Micron Sediment Pre-filter
Carbon Pre-Filter	High Capacity Carbon Block Pre-filter(s)
RO Membrane Type	Thin-Film Composite (TFC)
DI Cartridge	Color Changing DI Cartridge

RO or RO/DI REQUIREMENTS

Operating Pressure: 45-85 PSI

Optimal Input Water Temperature: 70-77° F (21-25° C)

Output Rating: Output of Marine Depot KleanWater RO and RO/DI systems are measured with a water pressure of 50PSI, 75 Degree water and an input TDS of 125ppm. Lower water pressure, lower temperature and/or high TDS will result in lower output.

SYSTEM DESCRIPTION

The Marine Depot KleanWater Reverse Osmosis and Reverse Osmosis / Deionization Systems are available in many different configurations ranging from a simple 4-Stage RO-Only system to a feature-packed 6-Stage RO/DI System.

Sediment Pre-filter

First, the incoming feed water is passed through a one micron sediment pre-filter. This filter removes silt and other particulate matters that may clog the TFC membrane.

Carbon Pre-filter

The second stage of filtration is a carbon pre-filter (select models feature two carbon cartridges). This filtration step removes organics, chlorine, chloramine and other chemicals from the feed water that can damage the membrane. Our high capacity carbon block filter will also remove chloramines; although cartridge will exhaust more quickly. For the most effective chloramine removal, we recommend replacing the filters with our Chloramine-X GAC Carbon Filters once your current filters are exhausted.

RO TFC Membrane

The third filtration stage of the system is a high rejection thin film composite (TFC) reverse osmosis membrane. It removes 95%-98% of most inorganic salts, heavy metals, bacteria and almost all high

molecular weight organics in the water. The correct waste water to product water ratio is 3 to 4 parts of waste water for each part of product water.

Deionization Cartridge (on select models)

The fourth stage moves water through a Deionization Cartridge (select models feature two DI cartridges). As water passes through a bed of ion exchange resin, these resins attract and absorb ionic contaminants: cation resins absorb positively charged ions, and anion resins absorb negatively charged ions. They are capable of producing 18 meg-ohm-cm resistivity water. Deionization cartridges are designed to reduce silica, nitrates and phosphate levels in the low ppb range. It is also an excellent system for removing dissolved solids and gases and will offer ultra-pure water for your aquarium.

SYSTEM DIAGRAM

Check the box thoroughly for all parts listed for the type of unit purchased. All units come standard with a Garden Hose Fitting. If the feed water (faucet or laundry sink) does not have $\frac{3}{4}$ " garden hose threads, you will need to purchase a Feed Water Adapter, or a Faucet Coupler. These and other sold separately plumbing parts are available at MarineDepot.com or your local hardware store.



Figure A:
Pressure gauge/TDS Monitor



Figure B-1:
KleanWater Basic RO System

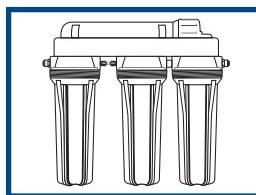


Figure B-2:
KleanWater 4-Stage Economy
RO/DI System

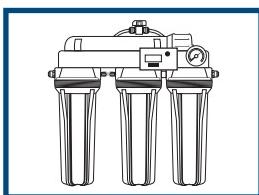


Figure B-3:
KleanWater 4-Stage Advanced
RO/DI System

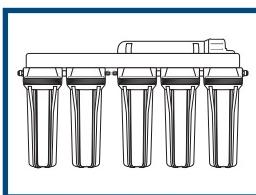


Figure B-4:
Marine Depot KleanWater
6-Stage Economy RO/DI System

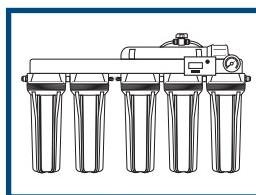


Figure B-5:
KleanWater 6-Stage Advanced
RO/DI System

The pressure gauge (Figure A; standard features on Advanced models) will allow you to monitor the pressure of the system and make sure that the filter is receiving sufficient water pressure to operate efficiently. It will also indicate, via a drop in pressure, when the sediment and carbon block filters are clogged and need to be replaced.

The Dual or Triple TDS meter (standard features on Advanced models) is used to monitor the condition of the TFC membrane and DI cartridge.

Flush Valve kit (standard feature on Advanced models) purges the TFC membrane and helps to extend membrane and DI cartridge life. We recommend flushing your membrane for 30 seconds before and after each use.

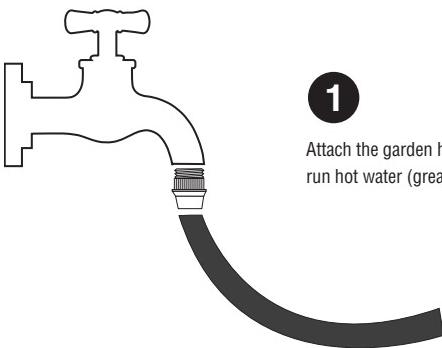
INSTALLATION INSTRUCTIONS

NOTE: It is YOUR responsibility to ensure all fittings are tight and that codes are met.

WARNING: Household water pressure can cause leaks and damage the surrounding building or fixtures if not properly installed. You must check all fittings for tightness. When installing canisters, hand-tighten ONLY! Filter wrench is only used for removal. Marine Depot assumes no responsibility for water damage due to leaks. **DO NOT** expose unit to direct sunlight or freezing conditions!

Marine Depot KleanWater Systems can be mounted to any secure location using hardware screws. Keep in mind that the filter system will gain a substantial amount of weight when it is full of water. For this reason, it is necessary that the filter system be mounted to a strong backing.

Mount the filter system level with clearance for all housings and hoses. Also keep in mind that there will be space needed to accomplish regular maintenance of the filter system such as pre-filter removal. Additional hardware and/or plumbing parts are available at MarineDepot.com or your local hardware or plumbing supply stores.



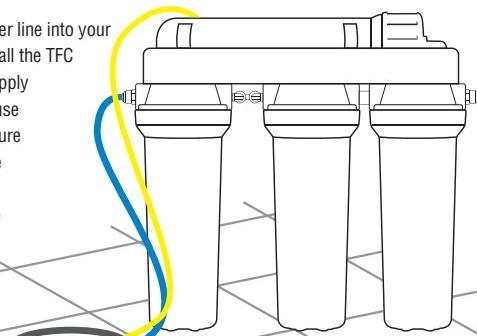
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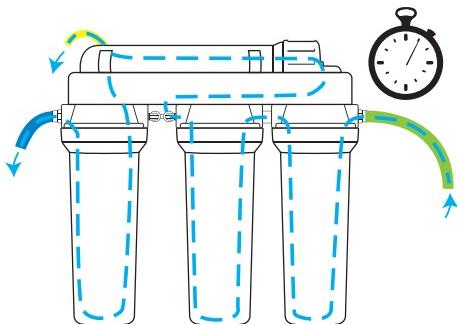
Attach the garden hose adapter to your cold-water source. Never run hot water (greater than 100° F or 38° C) through the system.

2

Place the yellow waste water line and blue product water line into your drain. Do not restrict flow from these lines. Do not install the TFC membrane at this point. Slowly open the cold water supply valve and allow the first two housings to fill. You may use pressure up to 85 psi. Double check the system to ensure that all fittings are tight and leak-free before leaving the system unattended.

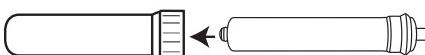
* For a RO/DI system, you will need to first remove the DI cartridge(s).





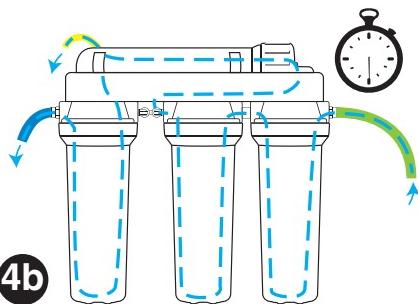
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Allow the water to run for 5 minutes to flush the sediment and carbon-block filter cartridges. Flushing the pre-filters will help to maximize the TFC membrane life.



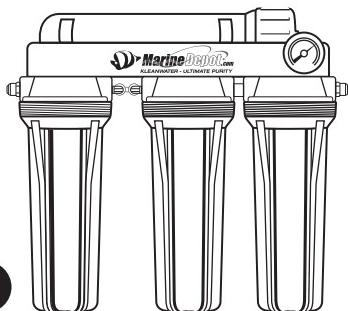
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Next, turn off the water supply. Remove the TFC membrane from the protective bag and install the membrane into the TFC housing at the top of the RO unit. You will need to disconnect the tubing to be able to unscrew the cap. Securely and fully seat the TFC membrane in to the housing: there should be about $\frac{3}{4}$ " of space from the lip of the housing to the top of the TFC membrane. Once the TFC membrane is seated, screw on the top and reconnect the tubing.



4b

Reverse osmosis membranes are packed with an anti-bacterial agent to keep them sterile prior to use. This agent should be flushed away to avoid human or animal consumption. Turn on the water once again and allow the unit to run for 30 minutes to flush out the anti-bacterial agent.



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- for RO systems, allowed the system to run for 30 minutes and discard the initial batch of water produced. Once flushed, the water from the product water line can now be collected for use.
- for RO/DI systems, allow the system to run for 30 minutes before re-installing the DI cartridge(s). Once DI cartridge(s) are installed, discard the first 2 gallons of product water and start collecting water for use. *Trapped air in the DI cartridge is a normal condition and will not affect the operation of the DI cartridge.

MEMBRANE & FILTER CARTRIDGE REPLACEMENT SCHEDULE*

Sediment Cartridge – change when visibly dirty (4-8 months), or when system pressure drops by more than 5 PSI

Carbon Cartridge – change at the same time the sediment filter is changed (4-8 months)

DI Cartridge – The color of the DI resin will begin to turn orange from the bottom up. Replace the cartridge once it has reached approximately 1" from the top of the cartridge(s). To more accurately determine when to replace the DI cartridge, use your TDS monitor or meter. You will notice a dramatic rise in the TDS level once the resin is exhausted.

Thin Film Composite (TFC) Membrane – should be changed when rejection rate drops below 95%. For example, if your tap water TDS is 100ppm, water exiting the TFC membrane should be 5ppm or less. TFC membranes will typically last about 1-2 years. The use of a flush valve kit is recommended to help extend the life of the TFC membrane.

*All listed service times are approximate. Actual service life may be significantly longer or shorter depending on the water source quality and how often the unit is used.

TROUBLESHOOTING

Your new Marine Depot KleanWater RO or RO/DI filter should work trouble-free out of the box. If you have difficulties or questions, please contact Marine Depot at 1-800-566-3474.

Note: The water supply should be turned off and the water pressure should be bled off prior to working on the filter system itself. The following are common problems and solutions:

Problem	Possible Causes	Solutions
Zero product water	- missing flow restrictor	- install flow restrictor
	- dried-up or damaged TFC membrane	- install new TFC membrane
Slow water production	- clogged pre-filters	- install new pre-filters
	- low water pressure (< 45 PSI)	- install booster pump or use higher output TFC membrane
	- low water temperature	- install booster pump or use higher output TFC membrane
	- hard water or high TDS	- install booster pump or use higher output TFC membrane
	- damaged TFC membrane	- install new TFC membrane
Too much product water, too little waste water, or DI exhausts quickly	- product and waste water lines reversed	- reverse product and waste water lines on TFC membrane
	- TFC membrane not fully seated	- remove then re-insert TFC membrane
	- damaged / ruptured TFC membrane	- install new TFC membrane
	- if chloramines are present, the carbon filter may be exhausted	- replace carbon filter with Chloramine-X filters and DI cartridge

STORAGE

When the unit is not in use, it is important to keep the TFC membrane hydrated. The TFC membrane must not be allowed to dry out. Keep the unit in a cool location and keep all inlet and outlet lines above the unit so the water will remain in the unit. If the RO (or RO/DI) system will not be used for more than 4 weeks, remove the TFC membrane and store it in a refrigerator inside a Ziploc bag filled with a small amount of purified water. Do not allow the RO (or RO/DI) unit to be exposed to freezing conditions or temperatures above 100°F.

Limited Warranty

Marine Depot warrants each new Reverse Osmosis & Deionization system to the original owner only to be free from defects in material and workmanship under normal use and conditions for a period of ONE YEAR from the date of original purchase.

Marine Depot's liability under this warranty shall be limited to repairing or replacing at Marine Depot's discretion, without charge, F.O.B. Marine Depot's factory, any product of Marine Depot's manufacture. Marine Depot will not be liable for any cost of removal, installation, transportation, or any other charges which may arise in warranty claim.

NOTE: This warranty is void if the product is: 1) Damaged through abnormal operating conditions, accident, abuse, misuse, unauthorized alteration, or repair. This includes, but is not limited to, failure to regularly replace carbon and sediment filters. 2) Damaged by poor local tap water conditions. 3) Damaged due to connection of equipment other than supplied by Marine Depot.com, or modification by the user. 4) Damaged by hot water, exposure to direct sunlight, freezing, flood, fire, or acts of God.

This warranty is valid only in the U.S. and is non-transferable. No other warranties are expressed or implied and any other warranties required by law are limited in duration to 90 days. This product is not warranted for any specific purpose. Marine Depot will not be responsible for consequential damages arising from installation or use of the product, including any flooding which may occur due to malfunction or faulty installation including, but not limited to failure of installer to tighten all fittings.

Please Note: Gallons per day are not warranted since it is dependent on the water conditions (i.e., temperature, pressure, and water harness).



www.marinedepot.com

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1-800-566-3474